

CLAIMS

1. An apparatus for array hybridization comprising:
a reaction cell for confining sample liquid and a gas, said reaction cell having an array of probes for hybridizing with respective complementary molecular components of said liquid sample;
5 a centrifuge for rotating said reaction cell so as to impose a centrifugal force greater than 1 G on said sample liquid, said centrifuge having a rotor that rotates about a centrifuge axis;
an agitator for rotating said reaction cell relative to said rotor so that said sample liquid moves relative to said array, said agitator being
10 mechanically coupled to said centrifuge and said reaction cell.
2. An apparatus as recited in Claim 1 wherein said agitator rotates said reaction cell about an axis more orthogonal to than along said centrifugal force.
3. An apparatus as recited in Claim 2 wherein said agitator changes direction of rotation of said reaction cell relative to said rotor periodically so as to define an agitation cycle rate.
4. An apparatus as recited in Claim 3 wherein said rotor has a rotation rate greater than said agitation cycle rate.
5. An apparatus as recited in Claim 2 wherein said agitation means rotates said reaction cell about an axis that extends more parallel to said centrifuge axis than orthogonal to it.
6. An apparatus as recited in Claim 5 wherein said array extends more orthogonal to than parallel to said centrifugal force so that said centrifugal force forces said sample liquid against said array.
7. An apparatus as recited in Claim 6 wherein said agitation means rotates said reaction cell about said agitation axis so that said centrifugal force forces liquid in said reaction cell away from said array.

8. An array hybridization method comprising the steps of:
introducing sample liquid into a reaction cell so that some interior volume is partially occupied by sample liquid and partially occupied by gas;

5 centrifuging said sample liquid by rotating said reaction cell having a probe array so that centrifugal forces urges said sample liquid against said array; and

agitating said sample liquid in said reaction cell during said centrifuging so that said sample liquid moves relative to said array.

9. An array hybridization method as recited in Claim 8 wherein said agitation involves rotating said sample cell about an agitation axis that is more orthogonal to than along said centrifugal force.

10. An array hybridization method as recited in Claim 9 wherein said agitating involves periodically changing the direction of rotation about said agitation axis so as to define an agitation cycle rate.

11. An array hybridization method as recited in Claim 11 wherein said centrifuging involves rotating said reaction cell at a centrifuge rate greater than said agitation rate.

12. An array hybridization method as recited in Claim 10 wherein said agitation involves rotating said sample cell about an agitation axis that extends more parallel to said centrifuge axis .

13. An array hybridization method as recited in Claim 12 wherein said array extends more orthogonal to centrifugal than along it so that said centrifugal forces urges said sample liquid against said array.

14. An array hybridization method as recited in Claim 13 further comprising a step of removing sample liquid from said reaction cell, said removing step involving rotating said reaction cell by rotating it about said agitation axis so that said centrifugal force urges said fluid
5 in said reaction cell away from said array.

15. An array hybridization method as recited in Claim 8 wherein said reaction cell is filled at most half way with sample liquid.